SM328S

OPERATING INSTRUCTIONS

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The manufacturer declines all responsibility for any damage caused by an improper use of the appliances mentioned in this manual; furthermore, the manufacturer reserves the right to modify its contents without any prior notice. The documentation contained in this manual has been collected with great care: the manufacturer, however, cannot take any liability for its use. The same thing can be said for any person or company involved in the creation and production of this manual.

Introduction

Typographical conventions

This instruction manual makes use of different graphics symbols:

Hazard of electric shock: unplug the power supply before proceeding with any operation, unless specified otherwise.

Important: please read the procedure or information given, and when applicable perform the operations as instructed. Failure to carry out the procedure correctly may cause faulty operation of the system or even damage it.

Notes: we recommend reading the notes to fully understand the system operations.

Safety rules

The SM328S video matrix complies with current legislation and standards regarding electrical safety, electromagnetic compatibility and general requirements in force at the time of publication of this manual. Nevertheless, in order to ensure the users' safety (installer technician and operator) we hereby specify the following advice for working as safely as possible:

- Only authorised, skilled technical personnel should be allowed to install the appliance (and the whole system of which it forms part)
- Never open the appliance, unless required by specific procedures described in this manual.
- Connect the appliances to a power supply that corresponds with their respective identification labels
- For technical services refer only and exclusively to authorised technical personnel.
- Do not extract the plug by pulling on the cable.
- Before moving or carrying out technical work on the appliance, disconnect the power supply jack: the appliance is to be considered OFF only when the power supply jack is disconnected and the connection cables to other devices have been removed.

- Do not use extension cables with signs of wear or ageing, since they could expose the user to serious safety hazards.
- Do not allow any liquid to wet the appliance and do not touch it with wet hands when in operation.
- Do not leave the appliance exposed to adverse weather conditions.
- Do not use the appliance in the presence of inflammable substances.
- Make sure the appliance is always placed on a sufficiently solid broad base.

Tampering with the appliance will invalidate the guarantee.

Keep this manual carefully for future consultation.

Warning: this is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

System installation

Preliminary operations

Opening the package

When the product is delivered make sure the package is intact and has no obvious signs of dropping, scrapes or scratches. If the package is damaged or if there is something missing from the following list, contact the supplier immediately.

Material supplied with the matrix should be as follows:

- 1 programmable SM328S video matrix
- 1 user's manual
- 1 wide range power supply, IN 100-240VAC 50/60Hz, OUT 12VDC, including cables
- 2 DB25 connectors complete with shell
- 1 serial 9-pin cable

Checking the markings

The base of the matrix has a label that complies with CE markings, containing:

- Product identification code
- Power supply voltage (Volts)
- Frequency (Hz)
- Maximum consumption (Watts)

Before proceeding with the installation, examine the marking labels to make sure the supplied material corresponds with the required specifications. Do not, for any reason, make changes or connections unless indicated by this manual: using unsuitable equipment may constitute a serious safety hazard for people and for the system.

Switching on and off

Before powering the appliance:

- Examine the marking labels to make sure the supplied material corresponds with the required specifications.
- Make sure the matrix and other components in the system are closed up properly so that the direct contact with operating devices is impossible, except for the installation procedure otherwise required: in this case proceed with great care, following the instructions given in this manual.
- the matrix and the other parts of the system should rest on a large solid base.
- The power supply and connecting cables should not hamper the installer technician and operators when carrying out normal operations.
- Make sure the power outlet and extension cables, if any, are sufficient for the power load required by the system.

If in doubt, always consider the system on.

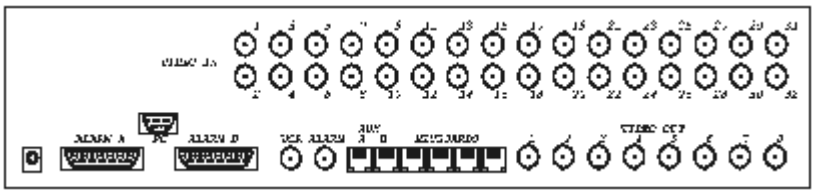
Switching on

Plug the power supply into the power outlet and connect the corresponding jack to the matrix connector labelled 12VDC. Turn the front switch to the ON (I) position. The LED on the front of the matrix should light up.

Switching off

Turn the front switch to the OFF (O) position.

Connectors and cables



Video cables

Use an RG 59 coaxial cable or equivalent. Over large distances we advise using a video transmission system via twisted pair.

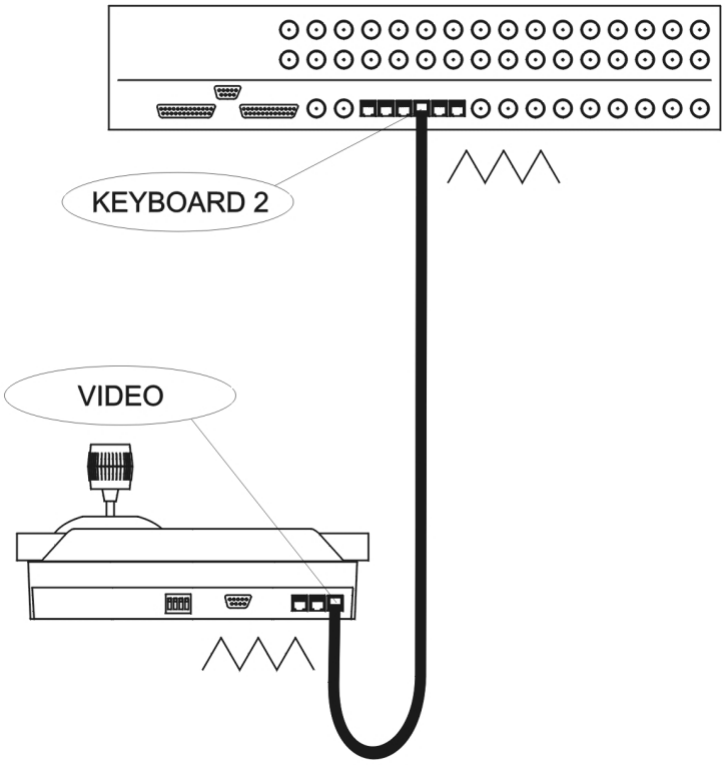
Keyboard lines

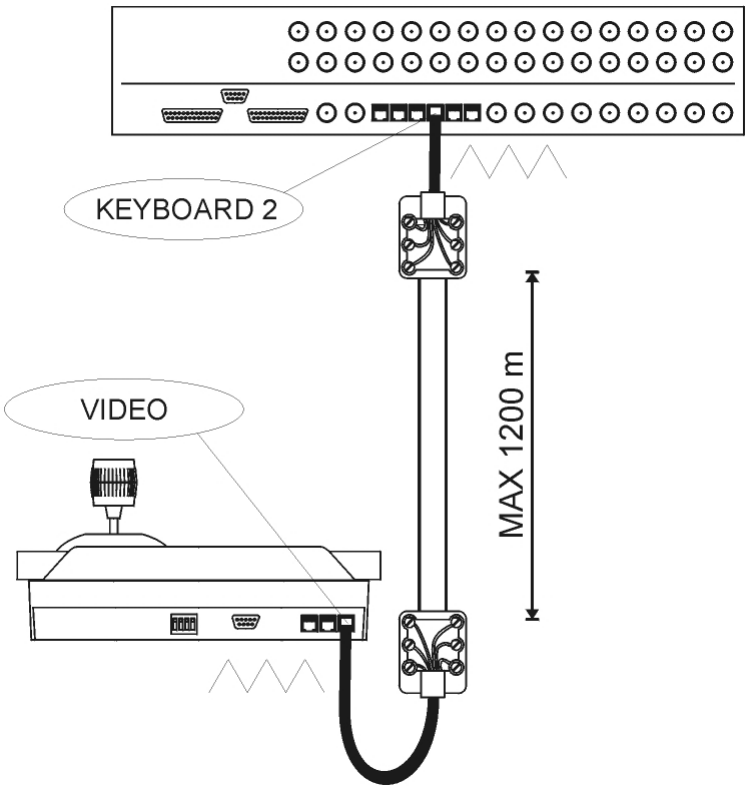
Keyboards can only be connected *on a single* line to a Single or Master matrix. Keyboards *cannot be connected* to Slave matrixes.

The matrix has four RS485 lines for the keyboards connection but only either number 1 or number 2 can be used (not at the same time):

- Line 1 is *not loaded (un-terminated)*: use this line when the matrix is not at the end of a RS485 line (in a real system this is the most frequent case.)
- Line 2 is *loaded (terminated)*: use this line when the matrix is at the end of a RS485 line (i.e. during tests with a direct connection between keyboard and single matrix.)
- Lines 3 and 4 are reserved for future use and *cannot be used*.

It is possible to connect a keyboard directly to the matrix using a phone cable (1.5m) or using a long-distance cable up to 1200m: use RJ jack shunt boxes and a non-shielded twisted pair with minimum diameter 0.6 mm (sect.0.22 mm² AWG 24):





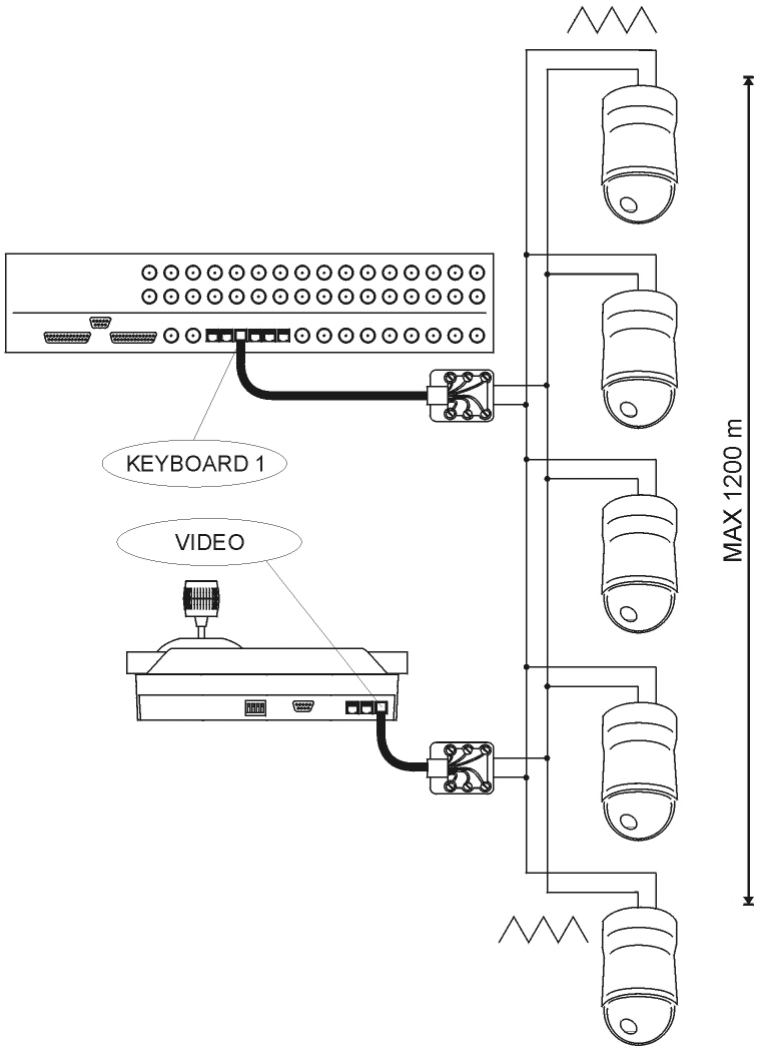
Keyboard Tx	Matrix Rx
RS485A white	RS485A blue
RS485B yellow	RS485B black

Direct Telemetry control

The matrix can be configured to position telemetry devices (domes) on alarm using SSP communication protocol.

Please set the dome baudrate at the value set for keyboards communication (cfr. Dip switch configuration).

Using an RJ jack shunt box connect the dome to the proper RS485A and RS485B lines:



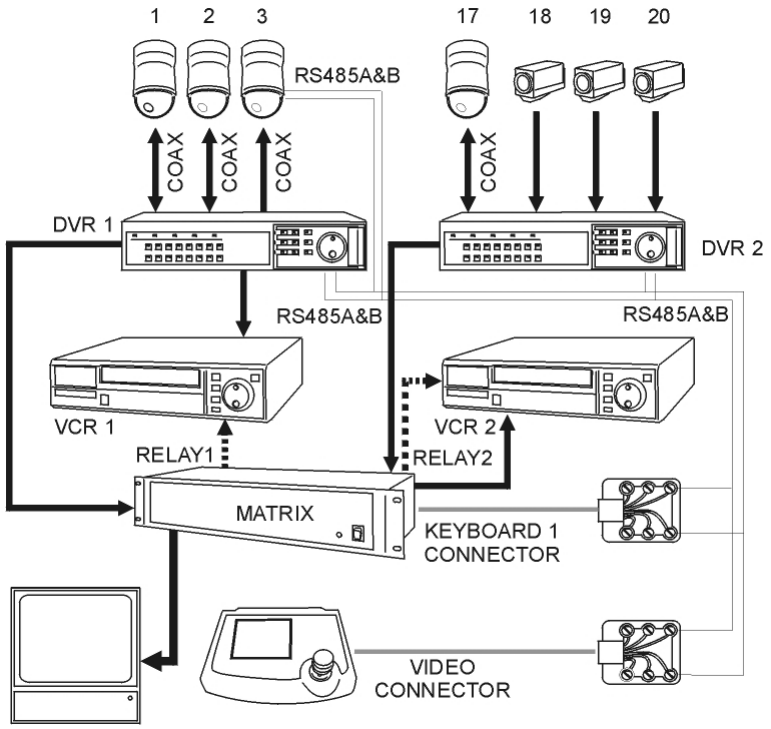
Poles	Keyboards	Single Matrix Master Matrix	Domes
RS485A	white	blue	line A
RS485B	yellow	black	line B

DVR and direct/coax Telemetry control

Keyboards can control MUX/DVRs and Telemetry devices (domes) using SSP communication protocol. Optionally Telemetry devices can be controlled by COAX through the MUX/DVRs when this function is provided by the MUX/DVR device.

Please set the baudrates at the value set for keyboards communication (cfr. Dip switch configuration).

Using RJ jack shunt boxes connect the objects to the proper RS485A and RS485B lines:



Poles	Keyboards	Single Matrix Matrix Master	DVRs MUXes	Domes
RS485A	white	blue	red	line A
RS485B	yellow	black	green	line B

Aux Line

The matrix is provided with 2 Aux lines:

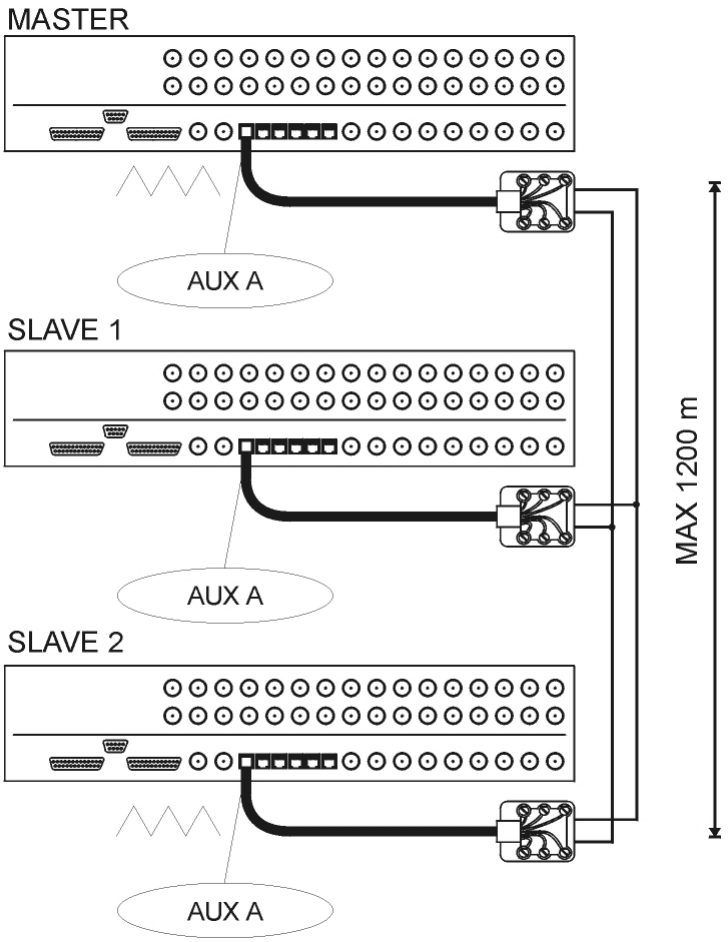
- Aux A is used to control optional auxiliary Slave matrixes.
- Aux B is reserved for future use.

In the case of Single Matrix configuration; Aux A is not used.

Don't connect any other device on the Aux A line.

To comply with the standard, the RS485 communication lines must be terminated at the ends to prevent signal reflection. On the Aux A auxiliary communication line the load can be inserted (jumper AUX_A in LOAD position) or excluded (jumper AUX_A in NO position). Please insert the load only for the matrixes at the end of the line.

To connect the Matrixes please use this cable:



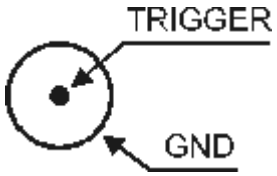
	Master Matrix Aux A	Slave 1 Aux A	Slave 2 Aux A
RS485A	white	white	white
RS485B	yellow	yellow	yellow

Personal Computer and Serial Printer Cable

Connect the personal computer or serial printer using a standard complete male/female 9-pin serial cable (serial extension).

BNC for the Alarm Reset

The external alarm reset trigger is supplied via BNC:



The minimum length of the reset alarms impulse is 30 ms.

Relay and alarm connectors

The matrix provides 2 connectors (ALARM A and ALARM B respectively) for alarm contacts and relays.

On a Slave Matrix these connectors are disabled.

Pin	DB25 A	DB25 B		Pin	DB25 A	DB25 B
1	Alarm 1	Alarm 17		14	Alarm 14	Alarm 30
2	Alarm 2	Alarm 18		15	Alarm 15	Alarm 31
3	Alarm 3	Alarm 19		16	Alarm 16	Alarm 32
4	Alarm 4	Alarm 20		17	Common al.	Common al.
5	Alarm 5	Alarm 21		18	Relay 1A	Relay 5A
6	Alarm 6	Alarm 22		19	Relay 1B	Relay 5B
7	Alarm 7	Alarm 23		20	Relay 2A	Relay 6A
8	Alarm 8	Alarm 24		21	Relay 2B	Relay 6B
9	Alarm 9	Alarm 25		22	Relay 3A	Relay 7A
10	Alarm 10	Alarm 26		23	Relay 3B	Relay 7B
11	Alarm 11	Alarm 27		24	Relay 4A	Relay 8A
12	Alarm 12	Alarm 28		25	Relay 4B	Relay 8B
13	Alarm 13	Alarm 29				

Electrical specifications of the alarms

Warning! Do not power the alarm contacts! The sensors (or the alarm control centre) must supply a dry contact.

Electrical specifications for the relays

Switching power: 10W max

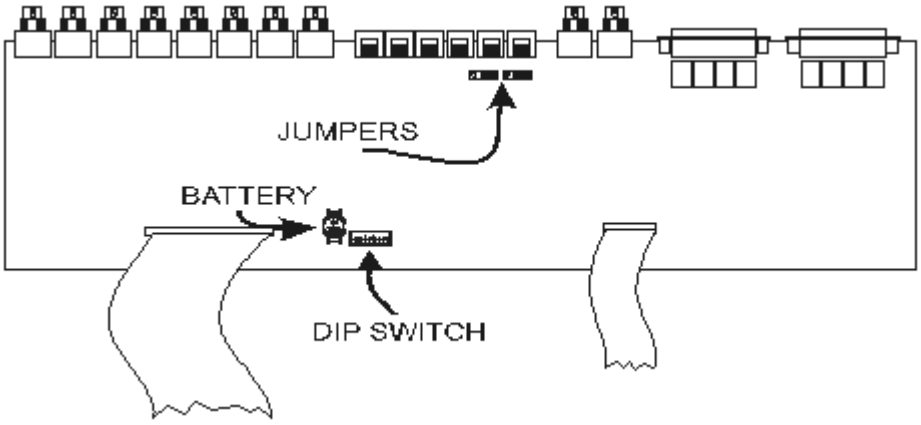
Switching voltage: 50 VAC/DC max.

Switching current: 0.5A max

Jumpers and DIP

Opening the matrix

Inside the matrix there are two jumpers for inserting the RS485 load (AUX_A behind the Aux connectors; AUX_B is provided only for future use), one DIP switch (SW1 near the backup battery in the centre of the board) and a backup battery:



Warning! The operations described below are carried out with the matrix cover removed. Take great care to prevent the risk of electric shock.

Dip Switch Configuration

To prevent faulty operation of the system, do not make DIP switch settings that are not included in the following tables.

System configuration and baud rate

Dip switches set the system configuration and communication baudrate.

Communications uses SSP protocol (ref.doc. SCTI-I001E, Security Serial Protocol (SSP) ver.1.14, 03/08/19). All the devices connected to the line must be set accordingly.

Dip5	Dip4	Dip3	Dip2	Dip1	System	Slaves	Baudrate
off	off	off	off	off	SINGLE MATRIX	N/A	19200
			off	ON			9600
			ON	off			4800
			ON	ON			2400
ON	off	off	off	off	MASTER MATRIX	1 Slave	19200
			off	ON			9600
			ON	off			4800
			ON	ON			2400
		ON	off	off		2 Slaves	19200
			off	ON			9600
			ON	off			4800
			ON	ON			2400
ON	ON	off	off	off	SLAVE MATRIX	Configured as Slave number 1	N/A
				ON		Configured as Slave number 2	N/A

Slave matrixes are used only for video input extension. They provide neither alarms information nor video texts.
Slave matrixes are not set up: the whole configuration is set up in the Master matrix.

Restoring the factory default settings

It is possible to restore the factory default settings for the matrix using the Dip Switch. All previous parameter settings will be lost.

1. Switch off the matrix
2. Set Dip 6 to ON
3. Switch on the matrix and wait until the presentation screen disappears
4. Set Dip 6 to OFF

Updating the firmware

The matrix firmware (program) can be updated when necessary.

When the firmware is updated the matrix setup is not erased. After updating however, we advise checking all the previous parameter settings are still correct and if not, we advise proceeding to reset the matrix and then re-configure all the parameters.

1. Switch off the matrix
2. Connect the Personal Computer using the serial cable
3. Set dips 7 and 8 to ON
4. Run the update program
5. When updating is finished, close the program then switch off the matrix
6. Set dips 7 and 8 to OFF
7. Switch on the matrix and make sure it is set up correctly.

Maintenance

Inside the matrix there is a battery to store the date and time when the matrix is switched off. If it has to be replaced, open the cover as described in section Opening the matrix with the matrix switched off.

Replace with a CR1225 battery (or equivalent DL1225, ECR1225, BR1225, DL1225B, BR1225-1W, CR1225-1W, KCR1225, LM1225, 5020LC, L30).

The positive terminal should face upwards.

Battery change is not necessary for Slave matrixes.

Setup

Notes regarding the menu system

Setting up the matrix is a rather complex operation: we advise proceeding a step at a time in the order suggested by the menus. The choices made in one menu will often affect subsequent menus, which may or may not show the setup parameters.

The menus can be further simplified by appropriate settings to the items in the menu for System setup/Simplify menu: all functions that are not used will be automatically removed from subsequent menus, thus considerably reducing the possibility of errors.

Setup is carried out using a keyboard connected to the matrix (On Screen Menu).

Matrix Setup

Only Single or Master matrixes have to be setup. Slave matrixes are not configured.

Setup by On Screen Menu

Setup by On Screen Menu interrupts matrix operation (any alarms arriving during setup will not be acknowledged) and puts the connected keyboards into a special mode. When exiting from setup, the matrix temporarily resets for a few seconds to accept the new settings.

The keys used for On Screen Menu setup are shown on the screen as necessary.

To enter a submenu press the corresponding number, to exit press the **Seq** key. Sometimes it will be possible to scroll through a series of lines with **Inc**/**Dec**, and request a change to the line indicated by the cursor by pressing the **Enter** key.

There are different ways of changing the parameters, depending on the item to be modified:

- by inserting a numeric value which is then to be confirmed by **Enter**; an inserted value that has not been confirmed can be erased with **Clear**; it is often possible to cancel a whole setup line by pressing **Dec** when inserting a numerical value
- by pressing a number till the desired item is selected, if the choice is between a few options: every time the key is pressed the next value is suggested.

Entering Program Mode

DCT / Keyboard

**** To be completed *** Any information to describe program mode by VSP*

Setup Parameters

Video system

The matrix is designed for use in PAL/NTSC systems, with interlaced and non-interlaced video outputs. **(Menu 2.1)**

If there is an obvious shift in the texts caused by monitors for which it is impossible to adjust V-HOLD, it is possible to centre the screen. **(Menu 2.1.3)**

Removing Texts and Masks

A special menu to remove Camera ID Texts, Alarm Texts, Date/Time, Image Masks reads on monitor is provided. **(Menu 2.1.4)**

This is useful during installation: the installer can read on screen all information to check if the system is properly set (sequences, alarms, etc) and can later remove this information to avoid it being mixed to the one provided by domes/DVRs/MUXes.

Simplify Menu

To simplify the setting it is possible to remove Night Sequences and Daylight Saving Time when these features are not used. **(Menu 2.2)**

Day and Night Periods

Should matrix operation be differentiated between day and night?

Sometimes matrix operation differs during the day (the period when the building under surveillance is open to public/staff) and at night (when the building is closed, the staff is not present and the surveillance system is normally used by security personnel). Holidays are considered Night Periods.

Many matrix functions (alarm acknowledgement, enabled keyboards, automatic sequences etc.) depend on the time period. Should differentiated operation be unnecessary the menus can be simplified to make system setup easier.

External Contacts

This menu enables/disables the External Alarm Reset Contact. **(Menu 2.3)**

Date

The matrix is able to display the date and time and use these parameters to vary operation depending on the period. **(Menu 2.5)**

For the Date it is possible to make the following settings:

- the current date
- the format (*International* year/month/day, *European* day/month/year, *American* month/day/year)
- position and visibility
- closed periods during the week, extra holidays and periods when the building is closed.

Weekdays

Available only if Night sequences are used.

For each day of the week (Monday, Tuesday etc.) it is possible to define a maximum of four time periods during which the building is considered open (Day Periods). At all times outside these 4 periods the building is considered closed (Night Periods). **(Menu 2.5.7.1)**

It is possible to copy the parameter settings for a particular day using the `0` (zero) key so as to simplify insertion when the periods are the same (from Monday to Friday for example). To cancel a line press `Dec` when inserting the numeric value.

Single day Holidays

Available only if Night sequences are used.

Single day holidays are defined as days that are not included as normal non-working days such as Sundays. **(Menu 2.5.7.2)**

For each day key in the numerical values as requested. If the value inserted is not valid, the previous setting will not be changed. To cancel a line press `Dec` when inserting a numerical value.

It is possible to define a maximum of 16 single day holidays over the year.

Holidays Periods

Available only if Night sequences are used.

These are periods when the building is closed (for holidays) and are defined by (inclusive) initial and final dates. **(Menu 2.5.7.3)**

It is possible to define a maximum of 8 holidays periods over the year.

Time

For Time it is possible to make the following settings: **(Menu 2.6)**

- current time
- format (*International* 24-hour; *English* 12-hour AM/PM)
- position and visibility
- parameters for automatic management of Daylight Saving Time.

Daylight Saving Time

Daylight Saving Time can be set in some ways: **(Menu 2.6.7)**

- Automatic on predefined Zones (Europe, Russia, America, Australia)
- Automatic on predefined time spans (from Last Sunday in March to the Last Sunday in October)
- Manual defining a begin-end time span.

Warning! The Date/Time type parameters are valid for only one year and should then be reset to the correct values as and when necessary.

Enabling the keyboards

Are some of the keyboards enabled only during certain day periods?

Each keyboard is identified by a number from 0 to 4, which is set at the keyboard level, independently of the matrix connector to which the keyboard is connected. **(Menu 2.7.1)**

Warning! The number should not be repeated within the group of keyboards connected to a system: the presence of keyboards with the same ID number will make it impossible for them to control the matrix.

Each keyboard can be set as:

- not connected (when it is necessary to disable the keyboard during tests)

- connected
    - always enabled
    - never enabled (temporarily disabled during system tests)
    - enabled during Day periods (when Night sequences are used)
    - enabled during Night periods (when Night sequences are used)

If a keyboard is not enabled any command send to the matrix will be ignored.

Control Monitor

Monitor 1 can be used as Control Monitor when this is necessary for specific surveillance features. **(Menu 2.8)**

Messages on the Control Monitor

Do you want to receive warning messages on Monitor 1?

Every significant event occurring to the matrix (alarm events and reset, video signal loss, period change etc.) can be shown on the Control Monitor. On pending events a blinking **<E>** is read on the screen bottom/right.

Security personnel may view the event log by pressing **Enter** and then take appropriate action when necessary.

The Master Operator can optionally delete the complete log or a single line.

The log can have a maximum of 100 lines: when 100 lines are reached the least recent messages are overwritten.

Excluding video inputs

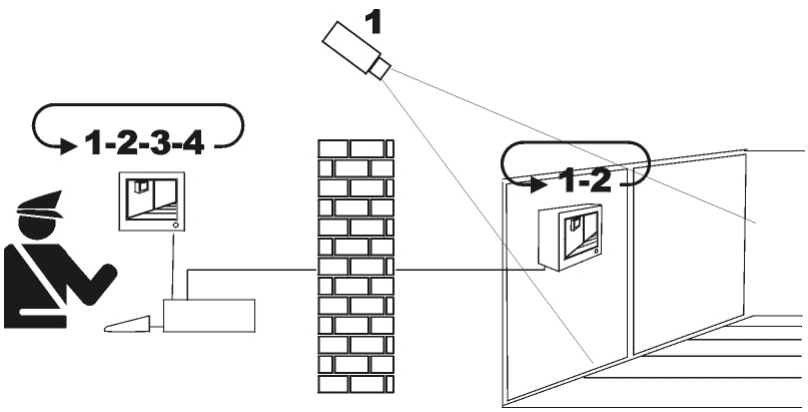
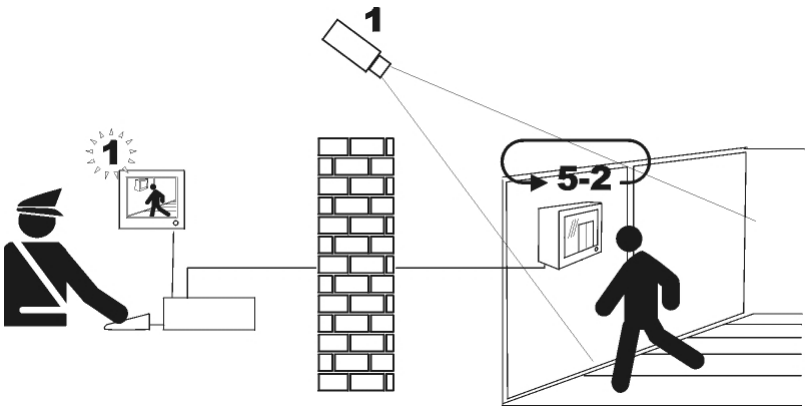
Is the matrix used in a shopping mall? Is the public able to see some of the monitors?

When the matrix is used in particular public places, such as shopping malls where one of the monitors is accessible to the public, each camera selected by the Master Operator may be replaced by a substitute camera. This is useful for preventing the ill-intentioned from watching a monitor, made public as a deterrent, and getting to know the intentions of the security personnel.

If exclusion is ON, each camera selected by the Master Operator will be substituted in all the cyclic sequences of the other monitors not in alarm status.

It is the operator's task to re-position the pan & tilt as appropriate before restoring normal operation.

Auto-return time (from 1 to 60 minutes) is used to return the system to normal mode (without camera exclusion) after a fixed time following selection by the Master Operator. If set to 0 it is disabled and the system does not return to normal mode.

	In the example the Control Monitor sho a cyclic sequence o inputs 1, 2, 3 and 4 The Public Monitor shows inputs 1 and Camera 1 frames th zone including the Public Monitor.
	During active contr of video input 1 we recommend removi the input itself fron the cyclic sequence the public monitor. In this case it has b replaced by input 5 called substitute camera.

The camera is excluded only if the Public Monitors are in automatic cyclic sequence. The Control Monitor is always number 1. The video input is excluded when a camera is selected on the master monitor.

During exclusion the Control Monitor reads a warning message. This message is overrided by an eventual alarm message.

To end camera exclusion press **Seq** to request the automatic sequence on the Control Monitor.

Cameras ID Texts

The matrix allows up to 80 cameras to be connected. Each camera has an ID text of max 28 char. When possible part of this text is shown in the various menus (when defining the cyclic sequences for example) to make setup control easier. **(Menu 3)**

Move the cursor to the desidered camera by means of **Inc** and **Dec**. It is possible to select quickly a camera text by pressing the number on the keyboard: i.e. **2** , **8** to select camera 28.

Enter is used to start modification of the ID text indicated by the cursor.

The text is inserted in the same way as for a cell phone: pressing a numeric key quickly several times will run through the characters associated with the key; a pause is used to pass to the next character.

Enter inserts a space and **Clear** erases the last character. **Inc** and **Dec** change the character set.

Cyclic sequences

Cyclic sequences are series of cameras that are shown consecutively according to a predefined order. **(Menu 4.1)**

Each sequence consists of max. 32 cameras, each of which can be shown for a time ranging from 1 to 600 seconds. The cameras may be repeated within a sequence in any order.

Defining and modifying the cyclic sequences

The definition screen shows the list of 32 available cyclic sequences. If a sequence is empty (the cameras have not been defined) fixed camera 1 will be shown. **(Menu 4.2)**

After choosing the sequence to define or modify press **Enter** to enter the edit submenu.

Inside the edit submenu scroll through the 32 available steps with **Inc**/**Dec** and request a change by pressing **Enter**: enter the time (from 1 to 600 seconds) and the camera to be shown.

Times from 1 to 180 seconds are determined with 1-second step; from 181 to 400 seconds in 5-second steps; from 401 to 600 seconds in 10-second steps. Inserting a time of 0 seconds or pressing **Dec** while changing a value erases the step.

Allocating cyclic sequences

After the cyclic sequences have been defined, the sequence to be shown must be assigned to each monitor.

Press **1** (and **2** if Night Sequences are provided) to change the desired sequence. The first cameras in the sequence are shown. **(Menu 4.2)**

Auto-return time

Auto-return time is the time between manual selection of a camera by the operator and automatic return to the cyclic sequence (between 1 and 60 minutes). If set to 0 it is disabled.

Alarms

Are alarms used?

Matrix alarms can be activated in 2 ways: **(Menu 5)**

- Contact Alarms: the alarm is activated when the respective contact on the rear connector is OPEN (if the alarm is defined as NORMALLY CLOSED) or CLOSED (if the alarm is defined as NORMALLY OPEN)
- Aux Command Alarms: the alarm is activated upon receving a proper command from keyboard.

Functionally these 2 types of alarm behave in the same way and each alarm can be either CONTACT or AUX COMMAND type but not both.

On alarm a number of automatic operations can be performed:

- Switching of chosen cameras or sequences on some monitors **(Menu 5.5)**
- Telemetry control to put connected domes/receivers on Home Position; up to 4 distinct positionings are available **(Menu 5.6)**
- Close of relays **(Menu 5.7)**
- Buzzer activation.

Contact Alarms

The matrix is supplied with 32 alarm contacts, which are defined as normally closed or normally open.

Only alarm contacts on Single and Master Matrixes are available: contacts on Slave matrixes are not enabled.

Alarm contacts that are not used should be set up as NOT USED to prevent false signals in the event of disturbance.

An alarm is acknowledged if the corresponding actuating signal is at least 30ms long.

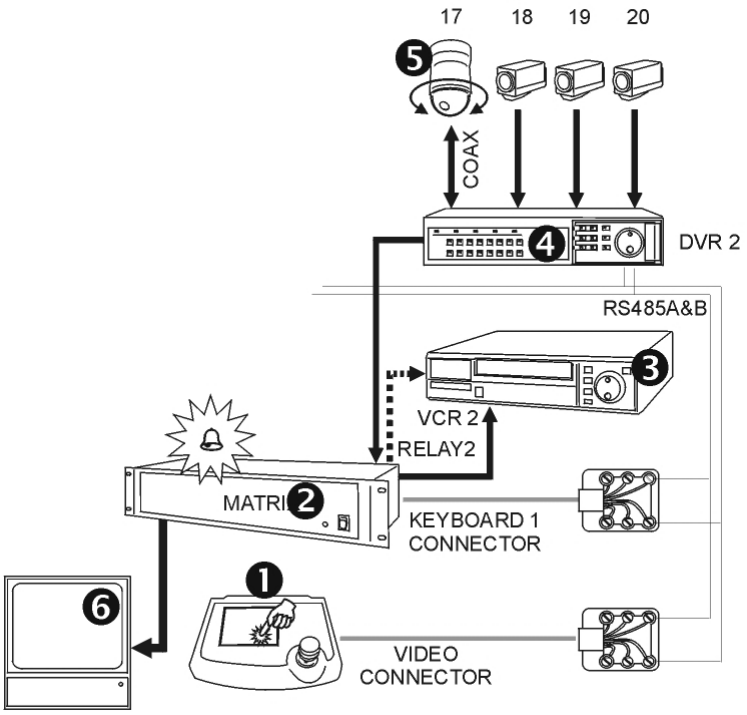
Aux Command Alarms

The use of Aux Command Alarms allows flexible management of periferal units,

such as VCRs connected to the system and multiple actions by pressing a single key.

AUX RESET commands are provided to reset the alarm condition by keyboard. AUX COMMAND ALARMS can only be reset by keyboard.

Actions on telemetry receivers are also available when the dome/receiver is controlled through a DVR (by Coax connection).



In this example it is assumed that:

- on keyboard the **Aux** key sends to the matrix the message `Aux+7` to activate Alarm no.7
- on the matrix Alarm no.7 is defined as AUX COMMAND and performs these actions:
    - it closes relay 2
    - it switches a camera related to a DVR on a monitor
    - it moves dome no.17 to preset no.1 (home)
    - it enables the matrix buzzer
- on the DVR, dome no.17 is connected through coax cable; it is also possible to connect the domes even on the keyboard line.

This is the sequence of actions:

- The operator (1) press the **Aux** key and a Aux+7 command is sent to the matrix
- The matrix (2) recognizes the command and set Alarm no.7 off
- Relay no.2 is closed
- The operator's monitor (6) shows an alarm-related camera
- A message to move dome 17 to home is sent by the matrix
- Alarm buzzer is activated
- DVR (4) receives the command sent to the dome and retransmit it through coax
- Dome 17 (5) moves to home position
- After closing the relay VCR (3) starts recording.

To reset the Alarm a command Aux-7 must be provided on the keyboard.

ID text

The Alarm ID Text can have a max. 28 characters and the procedure to define it is the same for ID texts for the cameras. **(Menu 5.2)**

Reset modes

Each alarm can be silenced in various ways and the reset mode setting for one alarm will not influence the other alarms. If more than one reset mode is defined for the same alarm, this alarm will be silenced by recognition of the first reset from among the definitions. **(Menu 5.3)**

For Contact Alarms four reset modes are available:

- Continuous type reset: when the alarm signal ceases (instructed by a control centre for example) the alarm event is silenced
- Keyboard reset: keyboards able to reset the alarm are indicated
- External reset: the alarm is silenced by an external reset trigger
- Time reset : the alarm is automatically silenced following a specified time after acknowledgement. This time can be selected from among 2, 5, 10, 20, 30, 60 seconds; 2, 5, 10, 15, 30, 60 minutes; 3, 6, 12 hours.

Notes

Do not use the continuous type reset if the alarm signal is of the pulsed type

(supplied by a sensor attached to a door for example)

The external reset trigger should be enabled to be able to reset the alarms by external reset.

For Aux Command Alarms only a keyboard Aux Reset Command is available.

Enabling the alarm contact

Acknowledgement of alarm events can be limited to specific periods (day or night period, always or never; the latter is useful if the alarm is to be temporarily disabled without losing the already completed setting, such as when testing a system). **(Menu 5.4)**

Effects on the monitors

When an alarm is acknowledged each video output may react differently: **(Menu 5.5)**

- the alarm may be ignored
- a fixed camera may be shown
- a pre-defined cyclic sequence may be shown.

To change the effect on a monitor press the corresponding number; then press **0** to ignore the alarm, **1** to request a cyclic sequence, **2** to request a fixed camera.

If a sequence or a camera is requested it is then necessary to indicate the desired number and then confirm it with **Enter**. A sequence/camera number equal to 0 or pressing **Dec** during insertion will cancel the action.

Action on receivers

If the telemetry receivers are controlled via the matrix it is possible to reposition up to 4 receivers when an alarm event is identified. **(Menu 5.6)**

The receiver number is always between 1 and 127. Setting the number 0 or pressing **Dec** during insertion will cancel the action.

The action on alarm can be selected:

- scan on predefined preset position
- autopan
- tour

- sequence patrol.

Action on relays

If a relay is controlled by an alarm, acknowledgement of the alarm is able to close it automatically. When more than one alarm controls the same relay, acknowledgement of any one of these alarms will cause the relay to close. When all alarms controlling the relay cease, the relay will open. **(Menu 5.7)**

Buzzer

It is possible to enable a warning buzzer on the matrix (each keyboard is set up individually for another warning buzzer in the event of an alarm).

Image Masking

Image Masking is a system to hide part of the image when this comes from *fixed cameras*. Do not mask signals from pan & tilt cameras, domes or VCR outputs: the view provided by these devices changes continuously and cannot be effectively masked. **(Menu 6)**

Masking may only be defined for video inputs present at the time of setup: in order to be able to modify masking, the video signals should already be connected to the matrix.

Changing the masking

If `Enabled` is OFF all Masks are not visible, even if previously defined.

Definition of a mask

Each camera is provided of a unique mask definition. **(Menu 6.2)**

Select the camera to be masked pressing **Inc** / **Dec**.

To erase completely a mask on the camera press **0** **0** (zero twice).

Move the cursor with keys **Up** /**Down**/**Left**/**Right** and toggle active cell visibility by pressing **Enter**.

Press **Seq** when mask definition is complete.

Composite systems

The matrix can be cascaded to connect more than 32 video inputs:

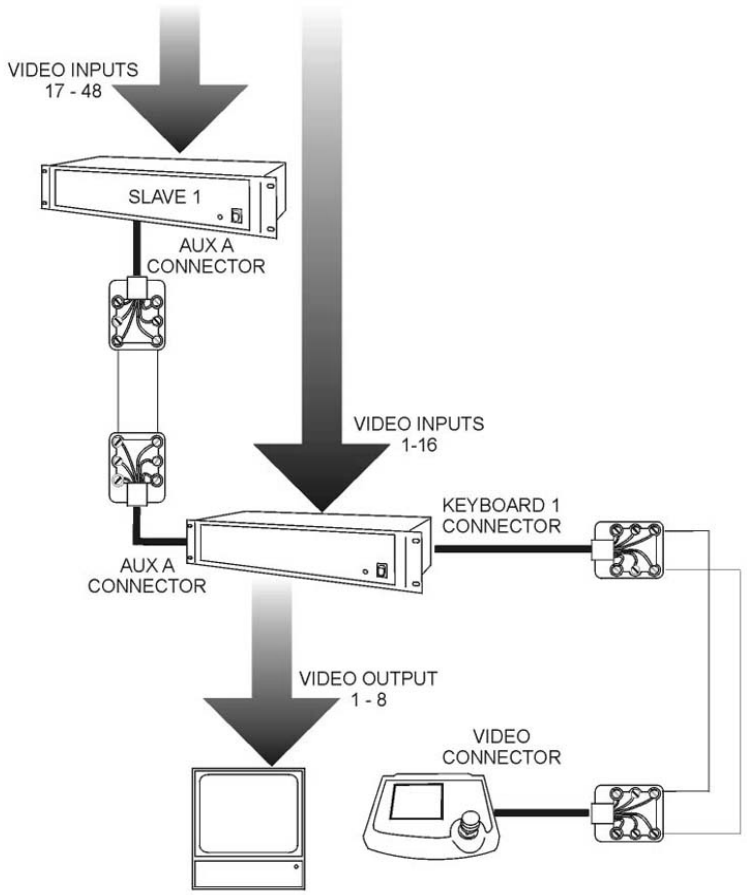
- 2 matrixes (1 Master + 1 Slave): up to 48 inputs

- 3 matrixes (1 Master + 2 Slaves): up to 80 inputs

A Slave matrix is just an extension card: it provide neither relays nor alarm contacts.

Keyboard can only be connected to the Master matrix.

1 Matrix and 1 Slave



Video inputs:

- Master matrix from 1 to 16
- Slave matrix from 17 to 48. The Slave matrix must be set as Slave no.1.

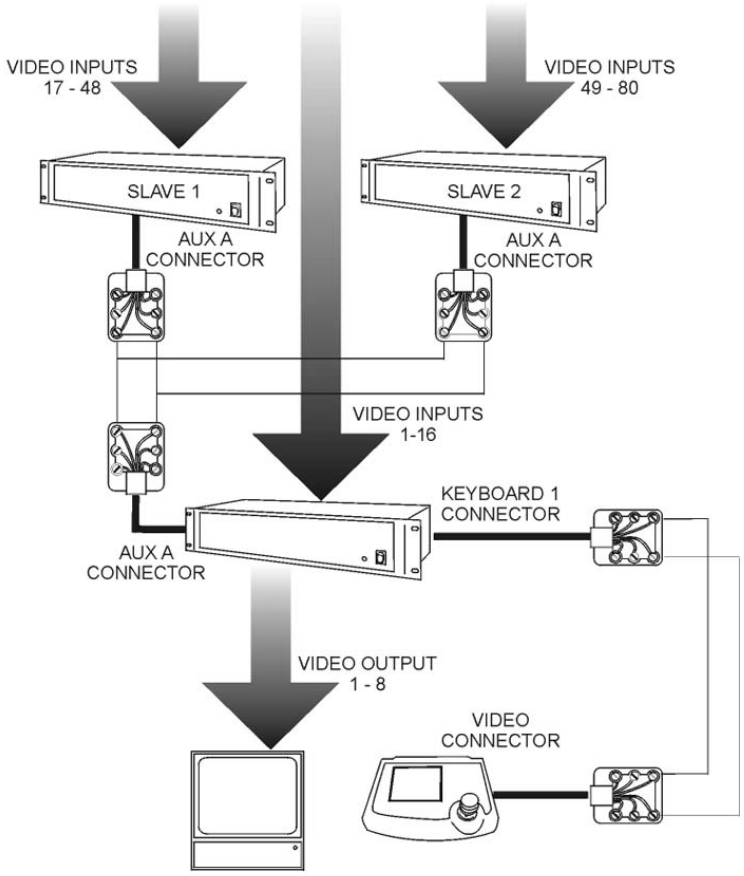
Connection cable is described in Aux Line.

Slave's outputs are connected to Master's inputs according to this table:

Slave output	Master input
1	17
2	18

3	19
4	20
5	21
6	22
7	23
8	24

1 Matrix and 2 Slaves



Video inputs:

- Master matrix from 1 to 16
- Slave matrix no.1 from 17 to 48
- Slave matrix no.2 from 49 to 80.

Connection cable is described in Aux Line.

Slave's outputs are connected to Master's inputs according to this table:

Slave 1 output	Master input		Slave 2 output	Master input
1	17		1	25
2	18		2	26
3	19		3	27
4	20		4	28
5	21		5	29
6	22		6	30
7	23		7	31
8	24		8	32

Event log

The matrix supplies a series of information, via the RS232 channel, for recording the succession of significant events occurring to the system. This log file is also extremely useful for identifying the cause of faulty operation due to errors when setting up the matrix.

The log can be sent either to a serial printer or to a Personal Computer, for subsequent processing in the latter case.

Warning! Serial printers are usually provided with a reception buffer: printing will only commence when the buffer is full. Before removing the paper from the printer force the printer to print the outstanding buffer, following the instructions given in the user's manual for the printer. Usually OFFLINE forcing followed by page feed is sufficient to empty the buffer.

Each event has a corresponding message in code that is sent to the RS232 channel. The message is preceded by an indication of the date and time and is followed by a checksum character.

List of event messages

Message	Parameters	Meaning
`PowerOn`	-	Matrix switched on

PowerOff[1]	-	Matrix switched off
PeriodDay[2]	-	Start of Day Period
PeriodNight[2]	-	Start of Closed Period
Time+1	-	Start of summer time (DST)
Time-1	-	End of summer time (TST)
Setup	-	Start of matrix setup
EndSetup	-	End of matrix setup
AlarmXX	XX: alarm number 1/32	Acknowledgement of alarm XX
KeybXAlarmReset	X: keyboard number 1/8	Reset alarms from keyboard No.
Aux+XX	XX: aux command from keyboard	An alarm activation is requested from keyboard
Aux-XX	XX: aux reset command from keyboard	An alarm reset is requested from keyboard
AlarmXXIdleOn	XX: alarm number 1/32	Alarm active but disabled
AlarmXXIdleOff	XX: alarm number 1/32	Alarm idle but disabled
AlarmExtReset	-	External alarm reset
AlarmXXTimeReset	XX: alarm number 1/32	Time alarm No.XX
AlarmXXAutoReset	XX: alarm number 1/32	Continuous
Video-XX	XX: camera number 1/32	Video loss, camera No.XX

Video+XX	XX: camera number 1/32	Signal return, video No.XX
CfgReset	-	Restore settings
MicroReset	-	Re-run program
EnKeybX	X: keyboard number 1/8	Time event: keyboard No.X
DisKeybX	X: keyboard number 1/8	Time event:
CloseRelayX	X: relay number 1/8	Time event: relay No.X
OpenRelayX	X: relay number 1/8	Time event: relay No.X
EnContactXX	XX: contact number 1/32	Time event: alarm contact XX
DisContactXX	XX: contact number 1/32	Time event: alarm
DateChange	-	Start date modification
DateSet	-	End of date modification
TimeChange	-	Start time modification
TimeSet	-	End time modification

1) The time at which the matrix was switched off is shown the next time it is switched on

2) After the message for the start of the day/night period there is a description of the status of the keyboards, relays and alarm contacts:

Message	Parameters	Meaning

KeyboardsX1..X8	X1..X8: keyboard status	Status of the keyboards + keyboard enabled, - keyboard disabled
RelaysX1..X8	X1..X8: relay status	Status of the relays + relay controlled by alarm enabled, - relay disabled, 1 relay controlled by time events enabled, 0 relay disabled
ContactsX1..X32	X1..X32: contact status	Status of the alarm contacts + contact enabled, - contact disabled

Baud rate and data format

The baud rate is the one set by the Dip Switch for communications with the keyboards.

Format is 8 bit, No parity, 1 stop bit.

Technical specifications

Power supply:	100 - 240 V~ 47/63 Hz
Consumption (max):	24 W
Video:	32 inputs - 75 Ohm 1 Vpp (PAL / NTSC) 8 outputs - 75 Ohm 1 Vpp (PAL / NTSC) > 6 Mhz
Lower cut-off frequency (-3dB):	9 Hz
Signal/noise ratio (S/N):	> 47 dB @ 5.5MHz
RS232 communication to PC:	max. 15m
RS485 communication to keyboards:	max. 1200m

RS485 communication to Aux devices (Mux and telemetry receivers):	max. 1200m
Relay contacts:	50 V AC/DC 0.5 A max
Net weight (excluding p.s.):	Epoxypoliester powder painted metal enclosure 3.2 kg 180 (L) x 430 (W) x 94 (H) mm (rack 19" 2HE)
Working temperature:	0 - 45°C
Compliance to:	EN55022 Class A, EN50130-4, EN60065, FCC Part 15 Class A